

First steps toward NYS Professional Geologist Licensure - Education and Examination Requirements

2025 Fundamentals of Geology Licensure Exam Participants: Ash Armstrong, Aila Bishop, Jesse Bullock, Ty Paddock, Chelsea Wright - Michael Rygel (Faculty Mentor)



ABSTRACT

NYSED recognizes the SUNY Potsdam Geology B.S. degree as “licensure qualifying” which effectively pre-qualifies our majors to take the Association of State Boards of Geology (ASBOG) “Fundamentals of Geology (FG)” exam in their last semester. Graduates from “non-licensure qualifying” programs (~2/3 of the geology programs in NYS) have to wait until after graduation and detailed individual transcript review by NYSED.

Historically, our graduates have an ~80% pass rate, which is ~15% higher than state and national rates. To further enhance our graduates’ success, we held an informal FG review course in spring 2025 and were the first college in NYS to encourage, assist, and subsidize graduating seniors who wanted to take the FG. 2025 results are expected in May. We will continue with formal exam preparation starting in Fall 2026.

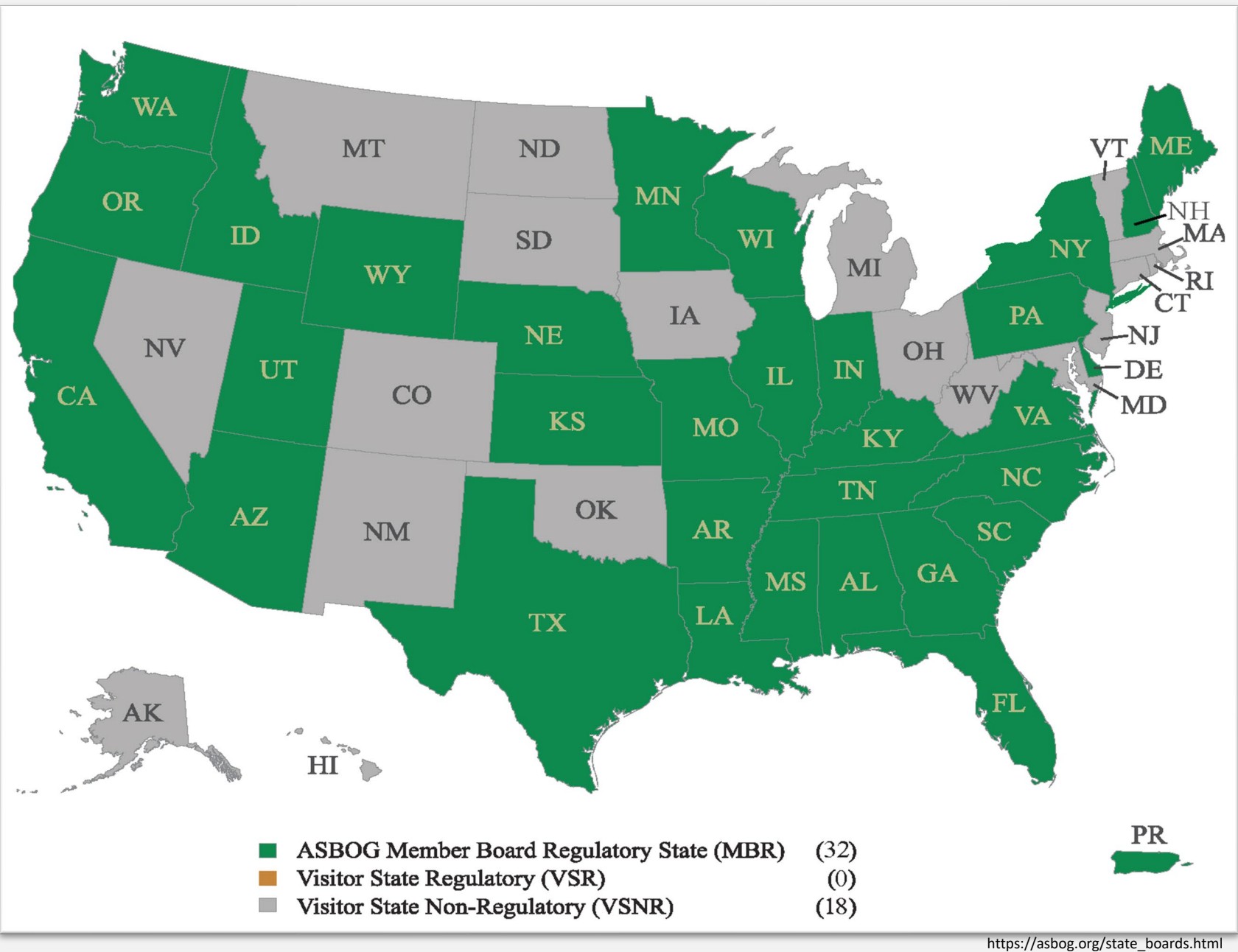
WHAT DOES A PROFESSIONAL GEOLOGIST DO?

- Licensure became the law in NYS in 2014 in recognition of the important role that geologists play in safeguarding people, property, and natural resources and protecting the environment. Specifically, we:

- Apply geological principles and judgment to problems related to Earth processes and resources
- Evaluate, plan, and design solutions for geologic problems and issues
- Have an awareness of the scale and uncertainty of natural systems and identify the “least worst scenario”



WHO REGULATES THE PRACTICE OF GEOLOGY?



- 32 jurisdictions regulate geology
- Each has a unique regulatory structure
- Must be aware of local requirements
- Broad and comprehensive geological education = career mobility

WHEN IS A PROFESSIONAL GEOLOGIST LICENSE REQUIRED?

You do need a license if you are an independent consultant or owner/officer of a firm that offers geologic services such as:

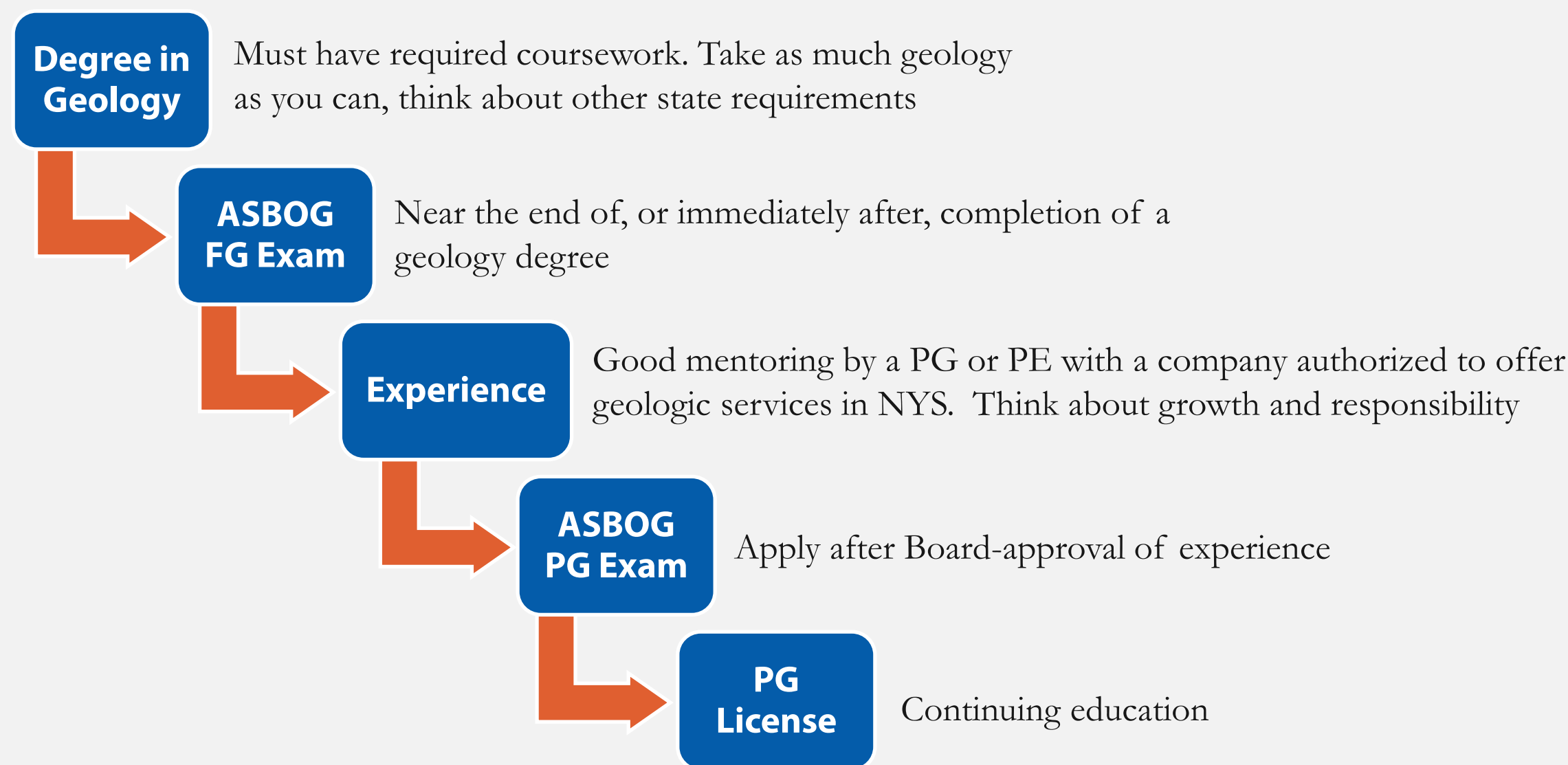
- Investigating and remediating contaminated properties
- Evaluating and mitigating geohazards (landslides, floods, earthquakes, etc.)
- Locating and developing water supplies, construction materials, and energy resources

You do not need a license if you:

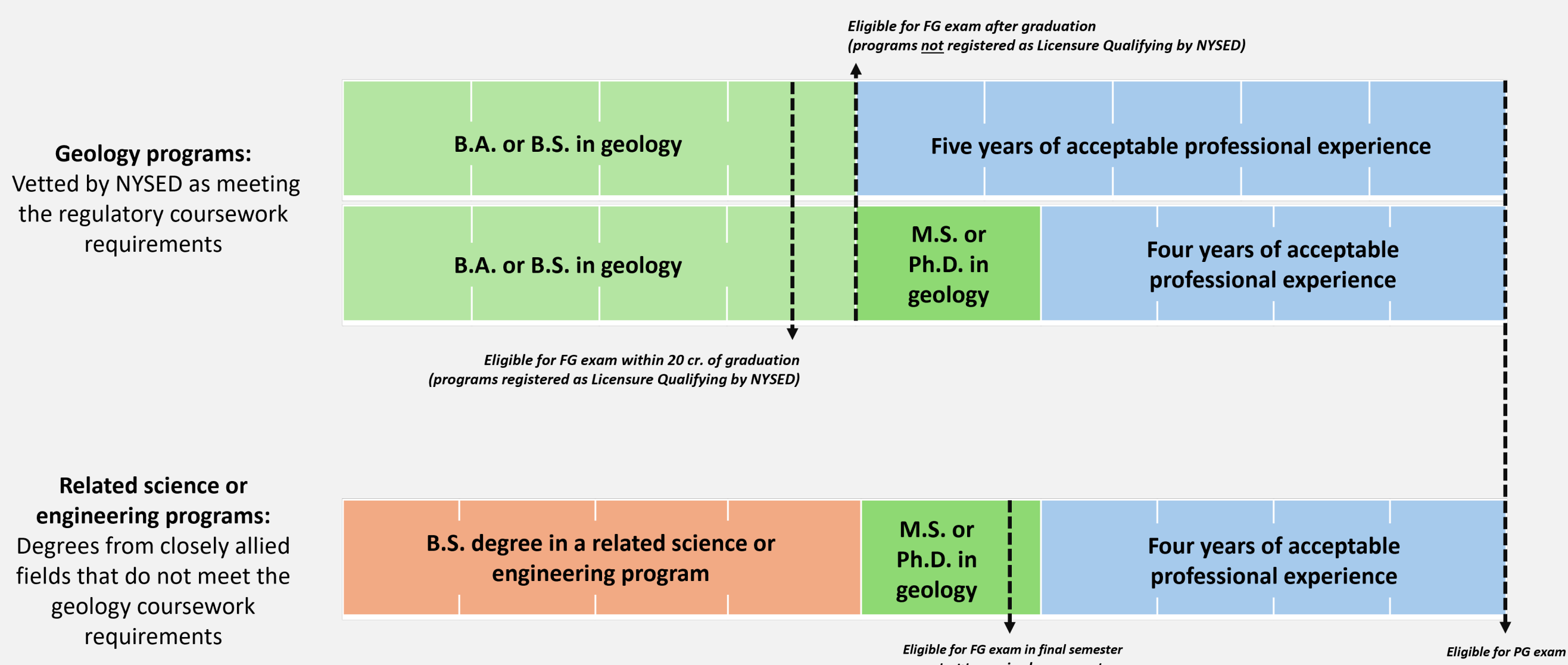
- Are working under a PG
- Are an employee of a firm not offering geologic services



STEPS TO BECOME A PROFESSIONAL GEOLOGIST IN NYS



EDUCATION, EXAMINATION, AND EXPERIENCE REQUIREMENTS



NYSED EDUCATION REQUIREMENTS

Type of Degree

- Earn a B.S. or B.A. degree in geology that meets coursework requirements or earn a B.S. degree in a closely allied field and a graduate degree in geology and complete coursework requirements
- Degrees from “Licensure Qualifying” programs are effectively fast-tracked through the transcript review phase. Degrees from “Non-Licensure Qualifying” programs are individually evaluated.



Math and Cognate Sciences

- At least six credits in math beyond college algebra and trigonometry (calculus, statistics, linear algebra, etc.)
- At least 15 credits in a combination of at least two of the following:
 - Physics
 - Chemistry
 - Biology

Geology Coursework

- 30 credits in geology; 24 of the credits must be from at least four of the eight following areas:
 - Earth Materials
 - Sedimentary Geology
 - Geotechnology
 - Surficial and Near-Surface Geology
 - Hydrogeology
 - Geodynamics and Geophysics
 - Economic Geology
 - Geological Skills/Applications



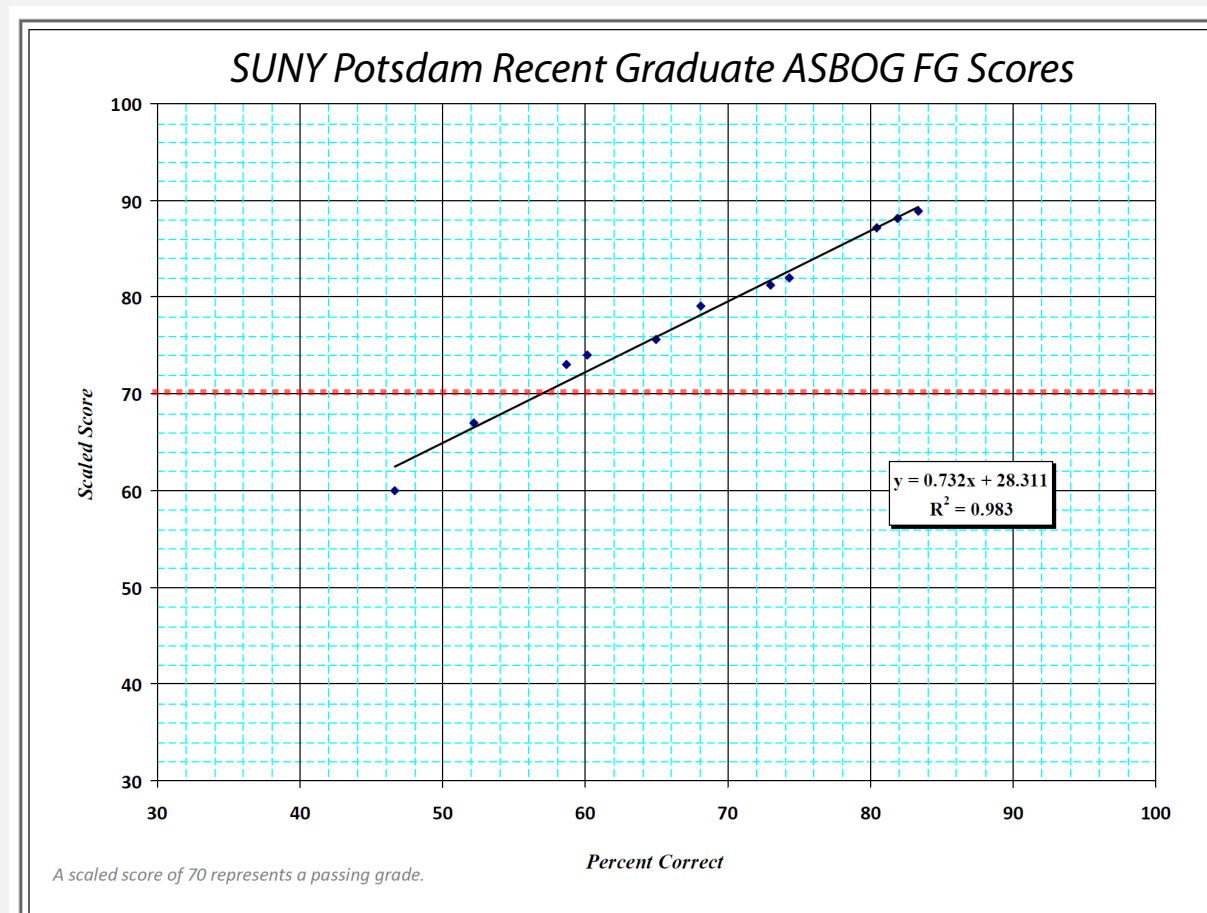
COMPARISON OF ASBOG & NYSED REQUIREMENTS WITH SUNY POTSDAM'S CURRICULUM

ASBOG Knowledge Domains	NYSED Content Areas	SUNY Potsdam Geology Courses
A - General Geology and Geological Investigations	Intro courses viii. Geological Skills/Applications	<ul style="list-style-type: none">GEOL 101 – Earth & the Environment or GEOL 125 – Earth Systems (one is required)GEOL 200 – Historical Geology (required)GISC 101 – Geographic Information Systems and GISC 410 – Advanced GIS (GISC 410 is an elective)Geology Field Camp (capstone option)
B - Mineralogy, Petrology, and Geochemistry	i. Earth Materials	<ul style="list-style-type: none">GEOL 311 – Mineralogy & Optical Mineralogy (required)GEOL 320 – Geochemistry (required)GEOL 445 – Igneous and Metamorphic Petrology (required)
C - Sedimentation, Stratigraphy, and Paleontology	ii. Sedimentary Geology	<ul style="list-style-type: none">GEOL 301 – Sedimentary Geology (required)GEOL 302 – Principles of Paleontology (required)
D - Geomorphology and Surficial Processes	iv. Surficial and Near-Surface Geology	<ul style="list-style-type: none">GEOL 350 – Geomorphology (required)
E - Structure, Tectonics, and Seismology	vi. Geodynamics and Geophysics	<ul style="list-style-type: none">GEOL 405 – Structural Geology (required)CE 419 – Applied Geophysics (elective offered by Clarkson)
F - Hydrogeology	v. Hydrogeology	<ul style="list-style-type: none">GEOL 410 – Hydrogeology (elective)
G - Engineering Geology	iii. Geotechnolgy	Content partially covered by GEOL 405 – Structural Geology (required) and ESCI 301 – Soil Science (elective)
H - Mineral and Energy Resources	vii. Economic Geology	<ul style="list-style-type: none">GEOL 440 – Sustainability and Earth Materials (elective)

FUNDAMENTALS OF GEOLOGY EXAM - OVERVIEW

- Designed to test knowledge that should be gained as part of a geology bachelor's degree
- Computer based; no notes; candidates are only allowed to have a pencil, scratch paper, and a non-QWERT calculator without the lid
- Must be taken in a secure testing facility; given in October and March of every year
- 4 hours; 140 questions
- Cost: \$70 application fee to NYSED + \$275 exam fee + travel and lodging

SUCCESS RATES ON THE FG EXAM



- A scaled score of 70% is considered a passing score by NYS and ASBOG.
- October 2024: Nationally, 490 of the 805 people that took it passed it (60.9% pass rate). In NYS, 37 of the 41 people that took it passed it.
- Since 2018, 251 of the 338 people that took in NYS have passed (74% pass rate).
- Since 2018, nine of the 11 SUNY Potsdam graduates that took the exam passed it (82%).

WHAT WE LEARNED FROM THE SPRING 2025 PREPARATION AND EXAM

- Preparation for a March exam needs to start in the fall. The Department will offer a two-semester prep course sequence starting next year (GEOL 496 and GEOL 499; each will be one credit)
- There are creative ways to help subsidize the cost of the exam. We are requesting a course fee for GEOL 496 to cover the cost of the application and the exam. The Department will help subsidize the cost of transportation and lodging. CSTEP-eligible students can apply for a stipend to help offset the cost. Having a course fee allows individuals to use aid and student loans to help with the expenses.
- A traditional geoscience curriculum is excellent preparation for the exam. The combination of required courses and electives allows students to get formal instruction in all eight content areas. Going beyond the minimum number of required electives (two) provides even more comprehensive coverage.
- The review course provides an opportunity to focus on the topics in each course that are most relevant to the exam and for students to augment their background with specific knowledge that might be particular to the exam or the non-academic practice of geology (equipment names and functions, acronyms, selected engineering terminology, etc.).
- In terms of taking the test, its important to remember a) basic test taking strategy, b) that there is no penalty for guessing, and c) to carefully watch the tutorial at the start of the test.
- We are working with NYSED and ASBOG to improve the application and test sign-up procedures to make sure that we can sign up earlier and all get seats at the same testing facility.
- The time between when you take the test (late March) and when you get the results (early May) seems like an eternity!

ACKNOWLEDGEMENTS

The Spring 2025 cohort was the first organized group of students to take the test in NYS. As compensation for being the experimental group, all expenses were covered by funding through the SUNY Potsdam Department of Earth & Environmental Sciences, Dean Imai/School of Arts & Sciences, and Sarah Lister/Lougheed Center for Applied Learning.